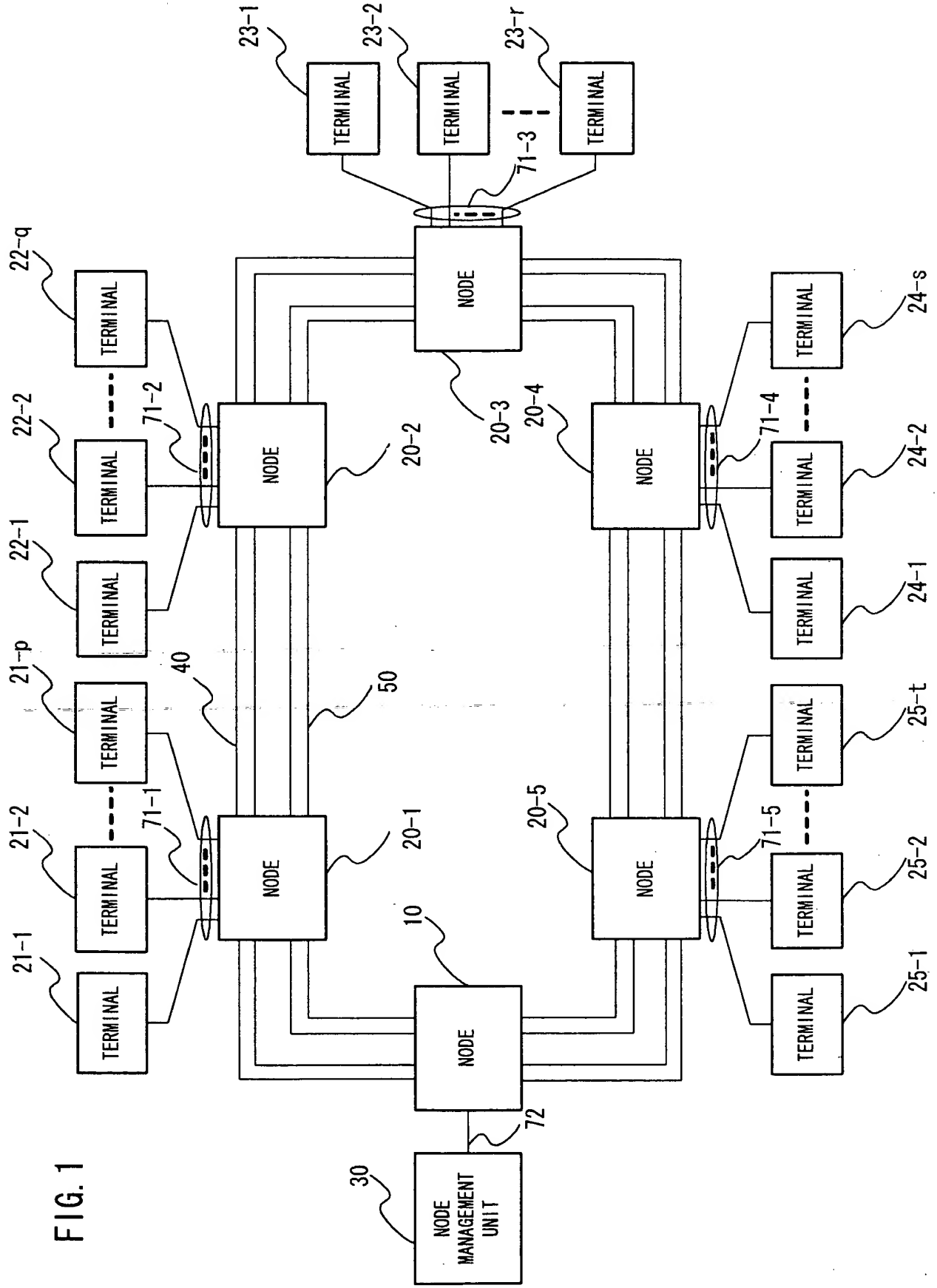

NODE
NODE
NODE
NODE
NODE
NODE
NODE MANAGEMENT UNIT
TERMINAL
10
20-1
20-2
20-3
20-4
20-5
21-1
21-2
21-p
22-1
22-2
22-q
23-1
23-2
23-r
24-1
24-2
24-s
25-1
25-2
25-t
30
40
50
71-1
71-2
71-3
71-4
71-5
72

FIG. 1

FIG. 2

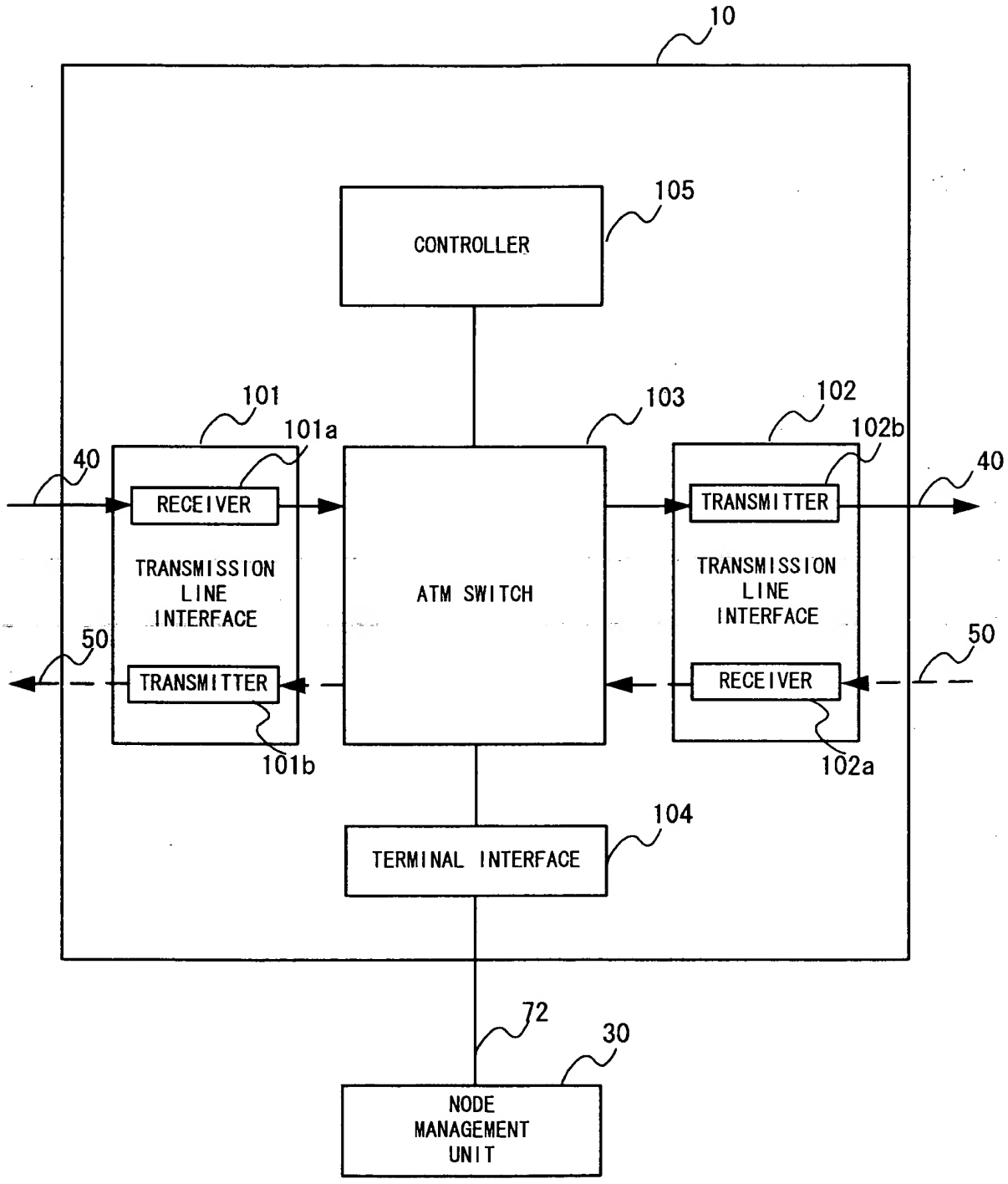
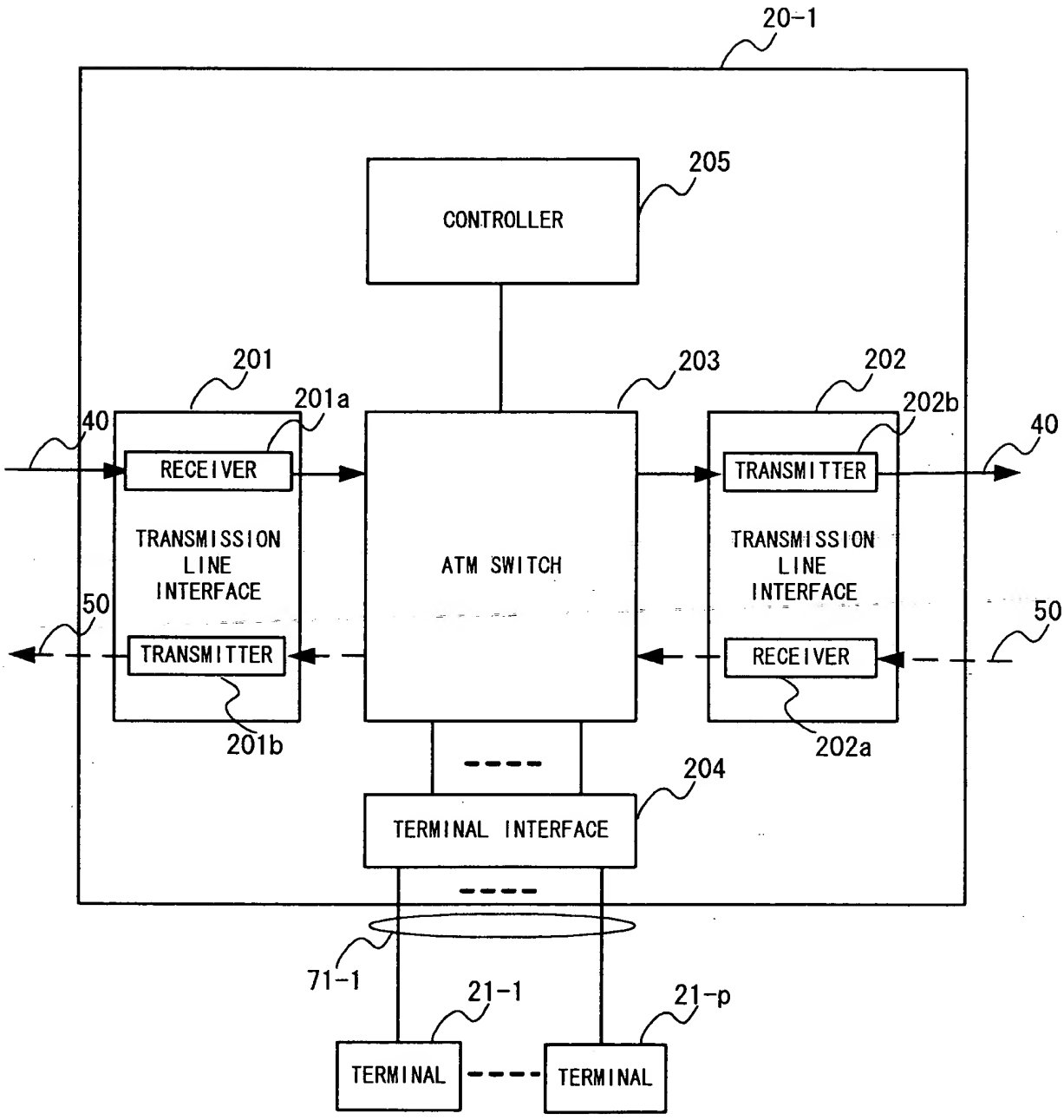

10
CONTROLLER
105
101
101a
103
102
102b
40
RECEIVER
TRANSMISSION LINE INTERFACE
ATM SWITCH
TRANSMITTER
TRANSMISSION LINE INTERFACE
40
50
TRANSMITTER
RECEIVER
50
101b
102a
104
TERMINAL INTERFACE
72
30
NODE MANAGEMENT UNIT

FIG. 3


20-1
205
CONTROLLER
201
201a
203
202
202b
40
RECEIVER
TRANSMISSION LINE INTERFACE
ATM SWITCH
TRANSMISSION LINE INTERFACE
TRANSMITTER
40
50
TRANSMITTER
RECEIVER
50
201b
202a
204
TERMINAL INTERFACE
71-1
21-1
21-p
TERMINAL
TERMINAL

RECEIVED 29 MAY 2002 TECH CENTER 2600

FIG. 4

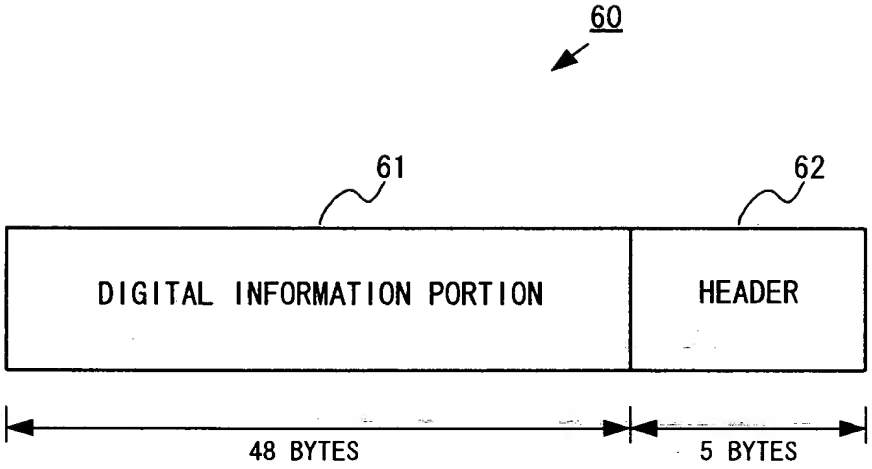


FIG. 5 (a)

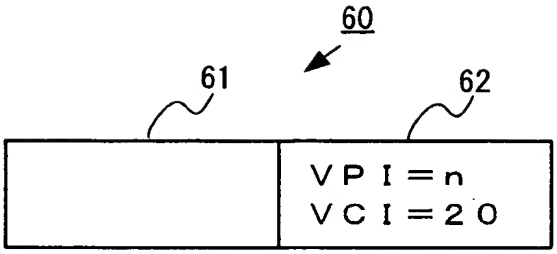


FIG. 5 (b)

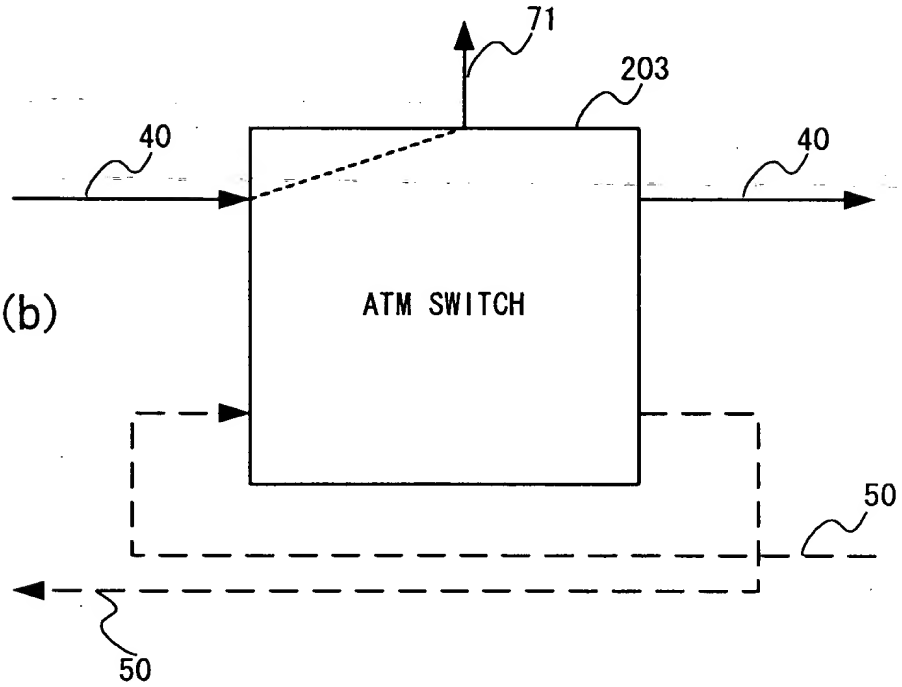


FIG. 6 (a)

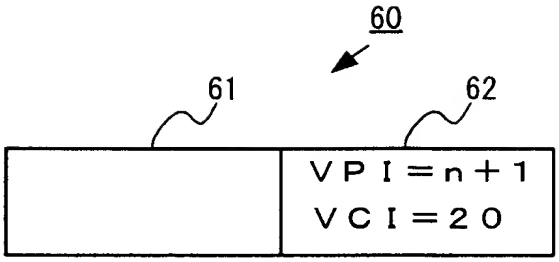


FIG. 6 (b)

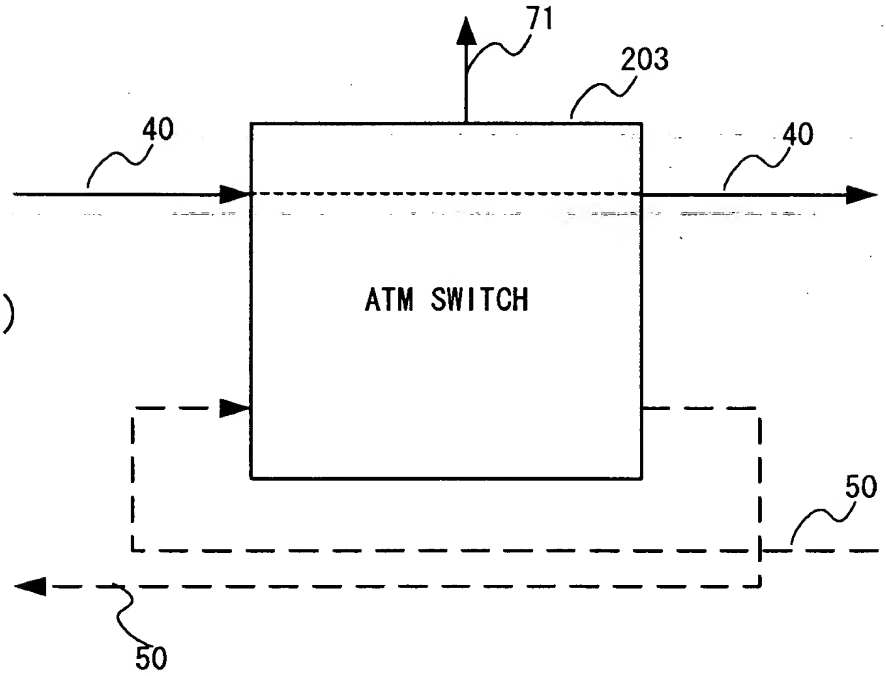


FIG. 7 (a)

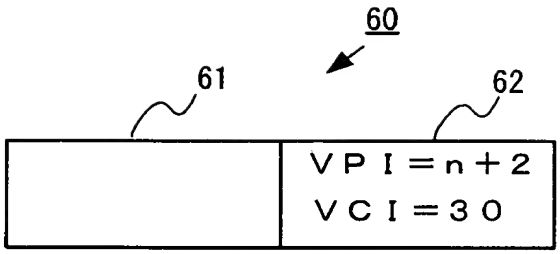


FIG. 7 (b)

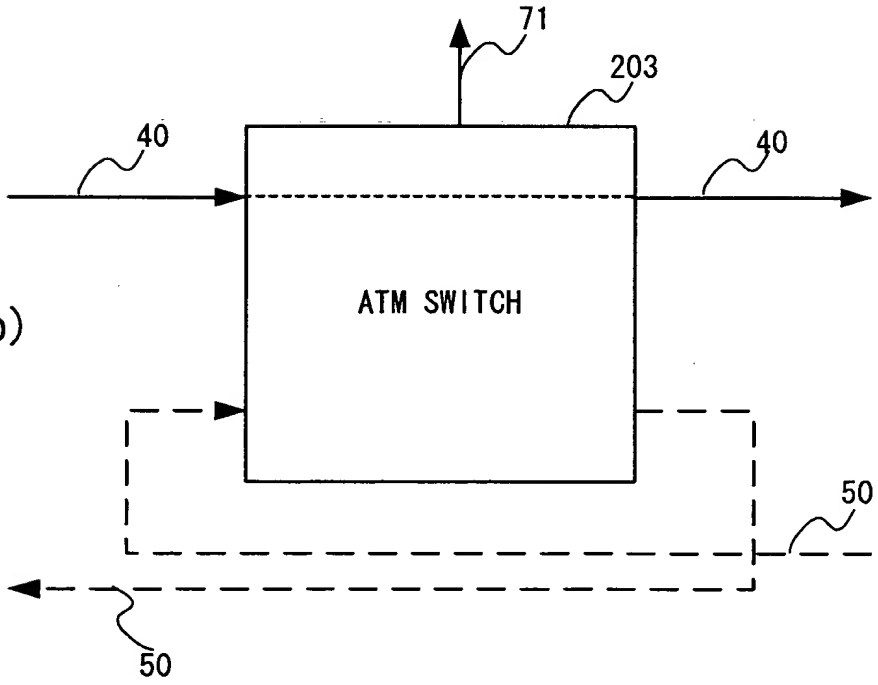


FIG. 8 (a)

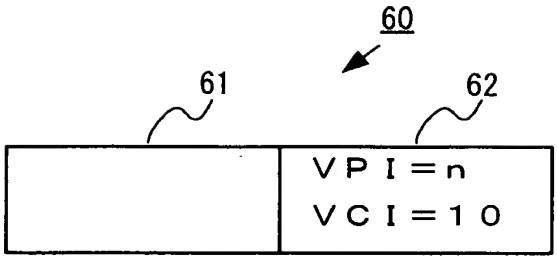


FIG. 8 (b)

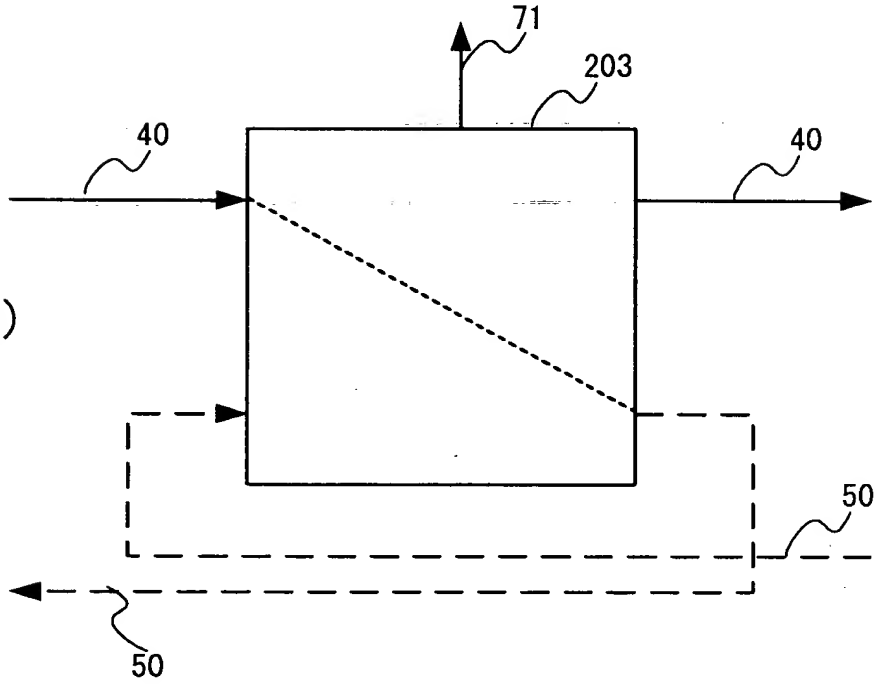


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FIG. 9

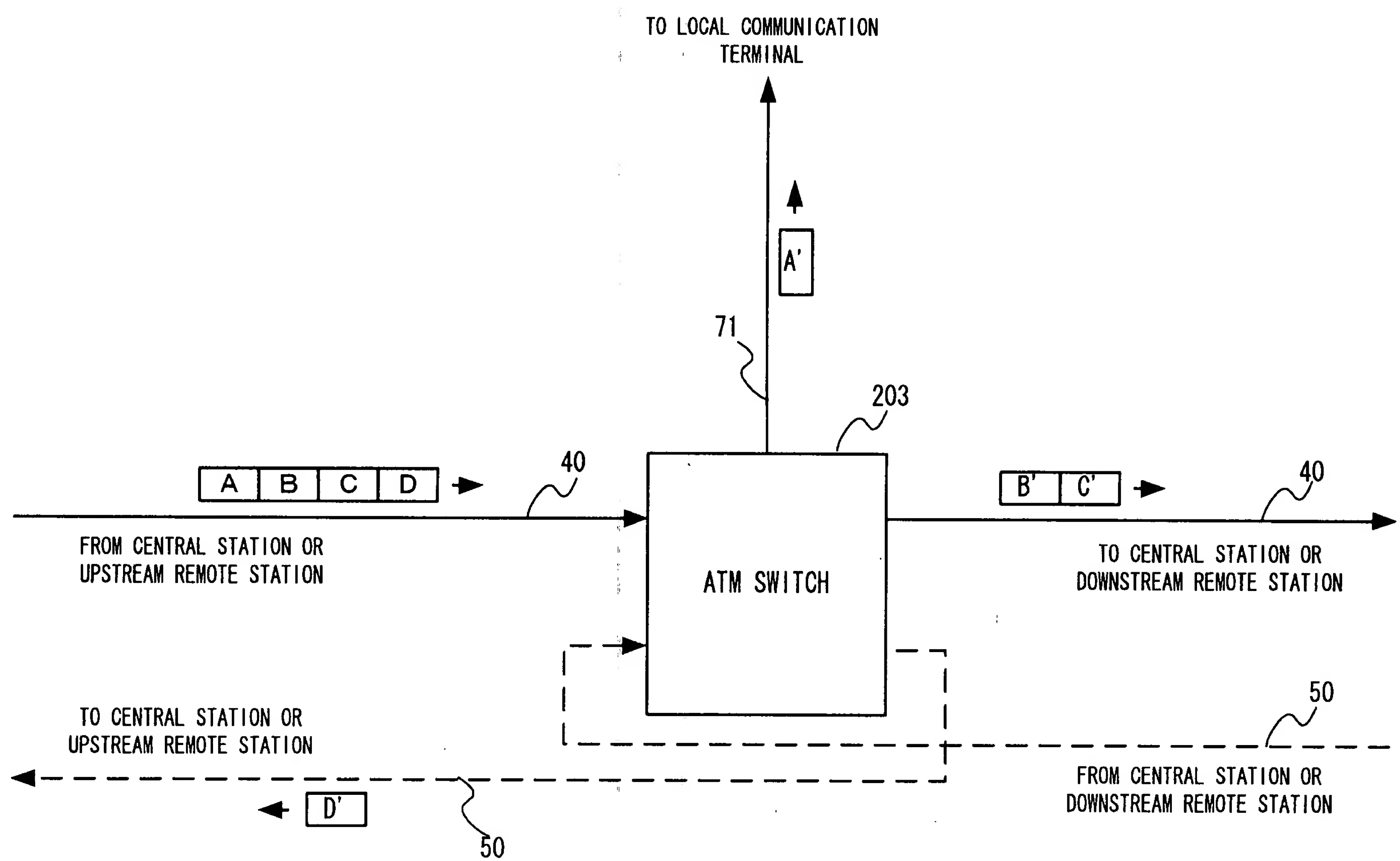

FIG. 10

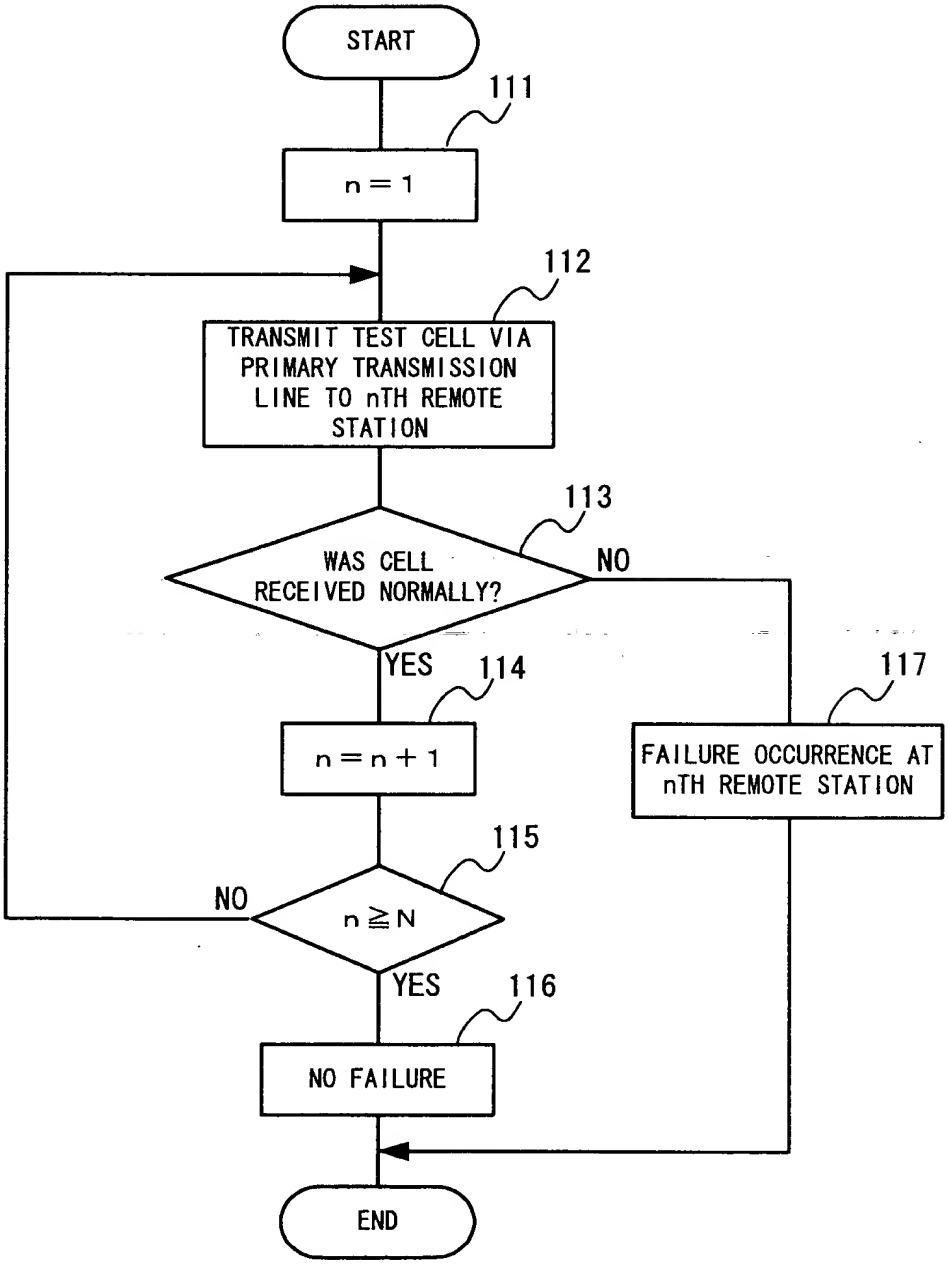
START
111
n = 1
112
TRANSMIT TEST CELL VIA PRIMARY TRANSMISSION LINE TO nTH REMOTE STATION
113
WAS CELL RECEIVED NORMALLY?
NO
YES
114
n = n + 1
117
FAILURE OCCURRENCE AT nTH REMOTE STATION
115
NO
n ≧ N
YES
116
NO FAILURE
END

FIG. 11

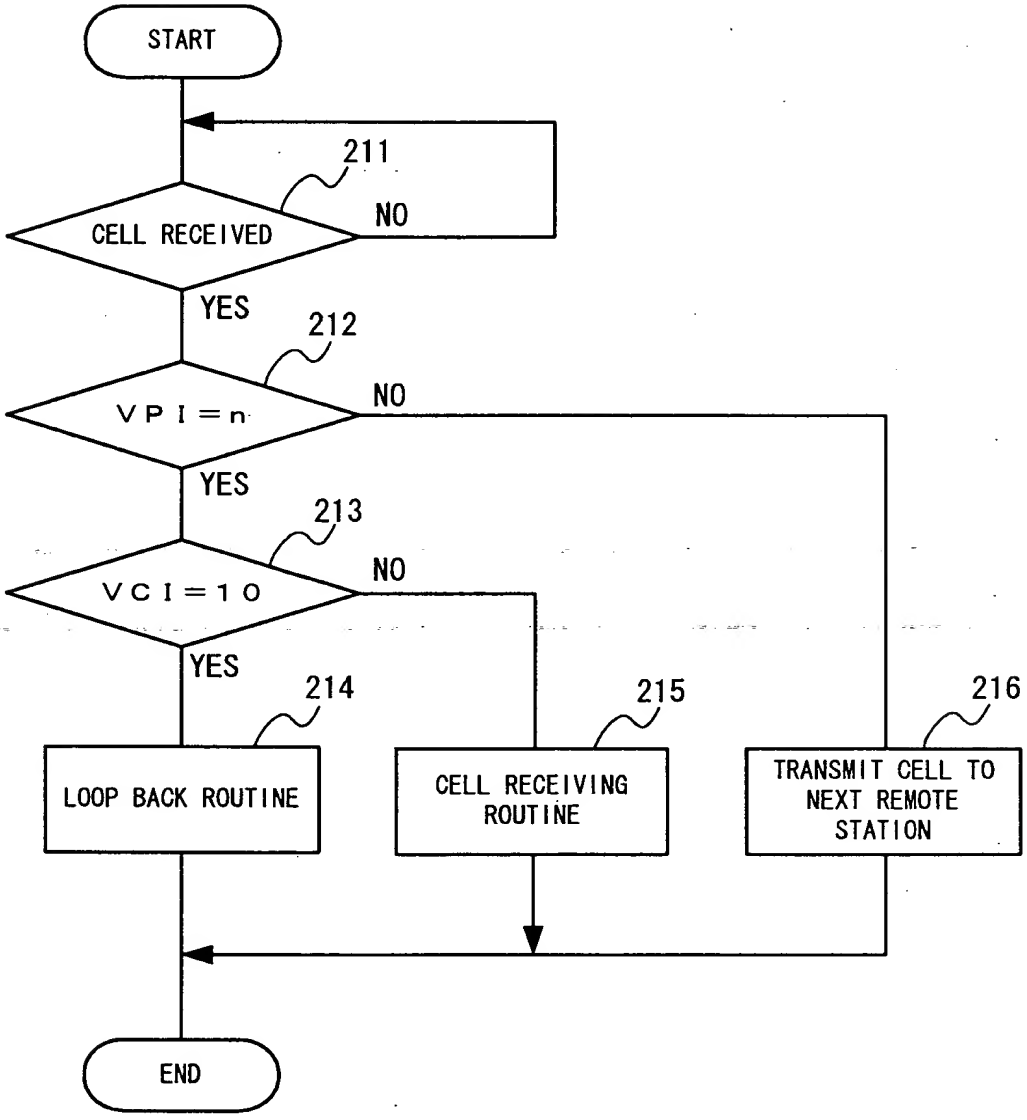
START
211
CELL RECEIVED
NO
YES
212
VPI=n
NO
YES
213
VCI=10
NO
YES
214
LOOP BACK ROUTINE
215
CELL RECEIVING ROUTINE
216
TRANSMIT CELL TO NEXT REMOTE STATION
END

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FIG. 12

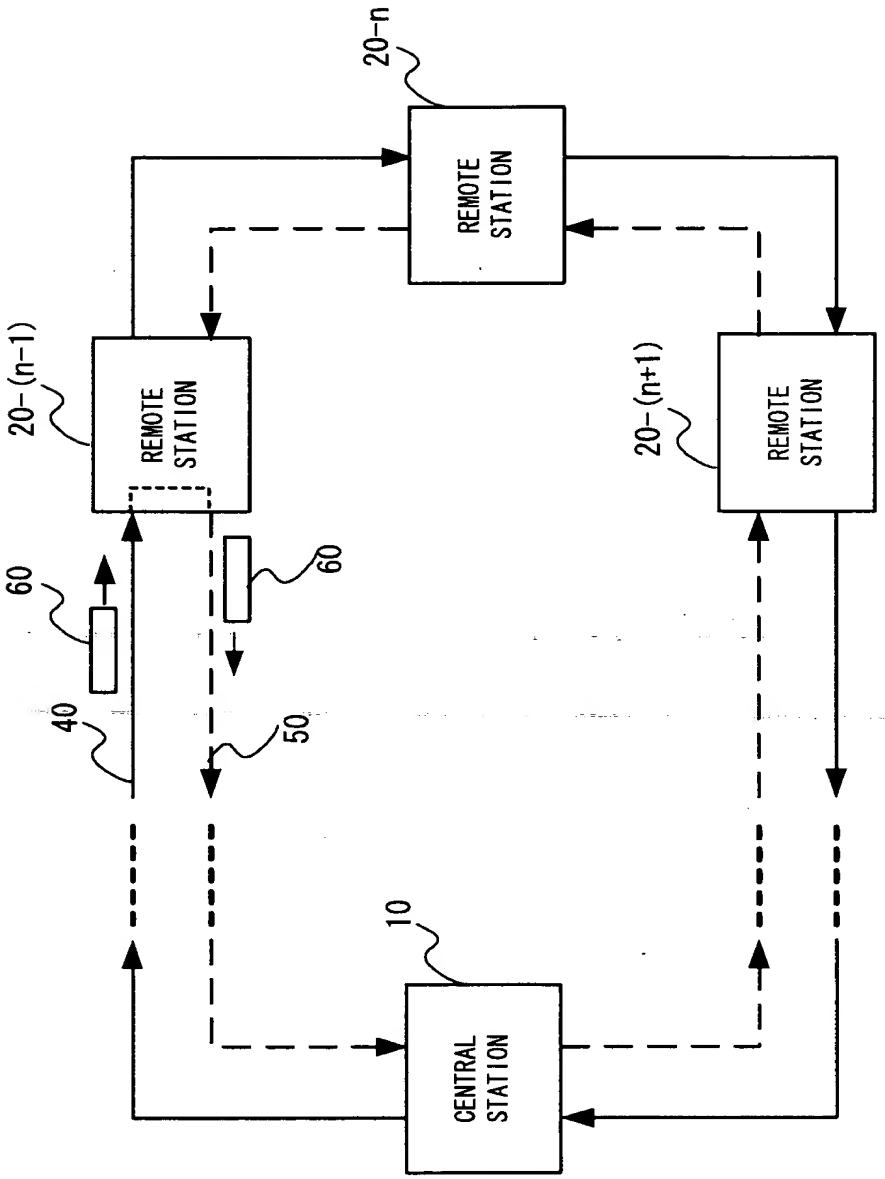


FIG. 13

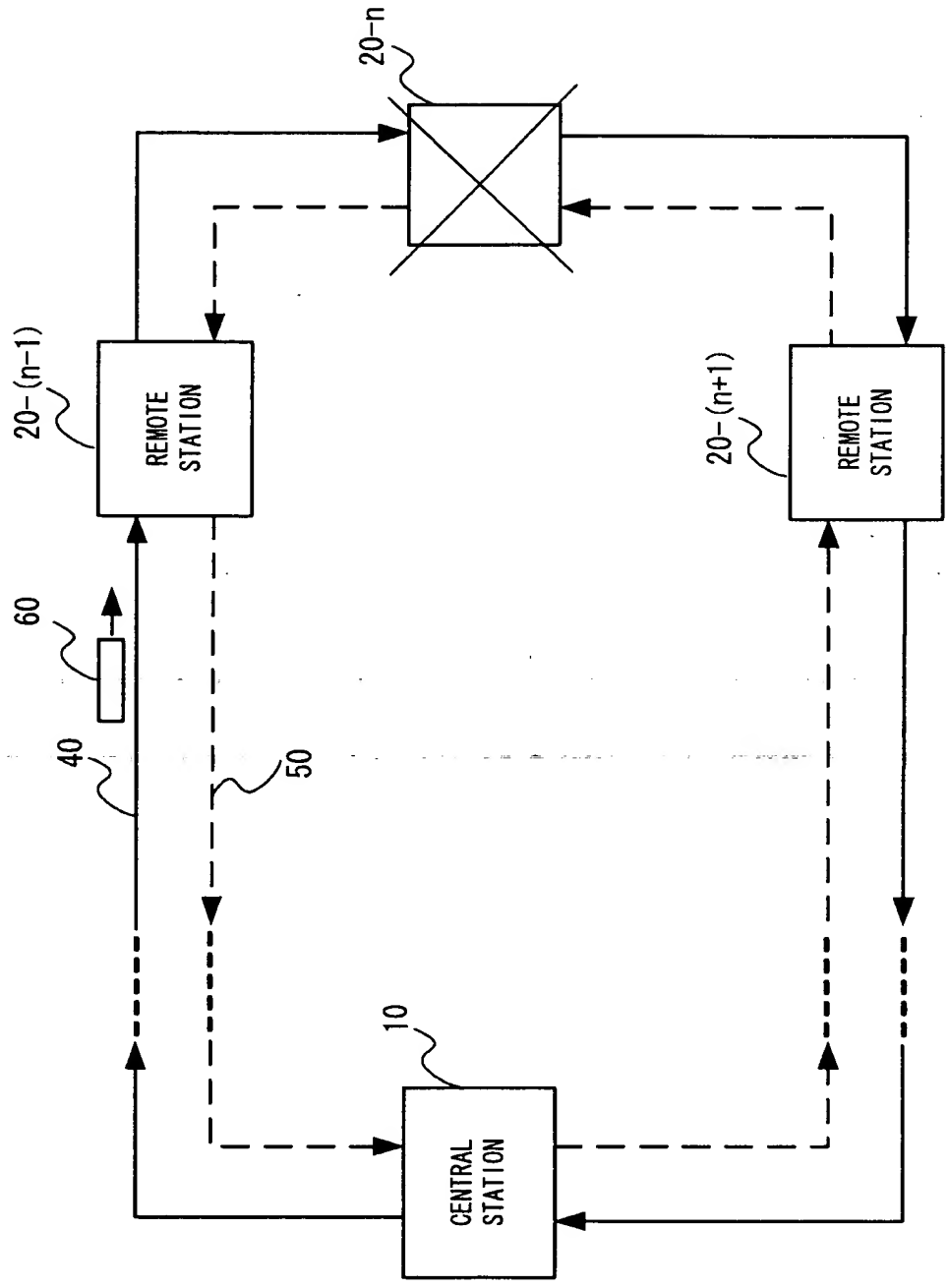

20-n
20-(n-1)
REMOTE STATION
20-(n+1)
REMOTE STATION
60
40
50
10
CENTRAL STATION

FIG. 14

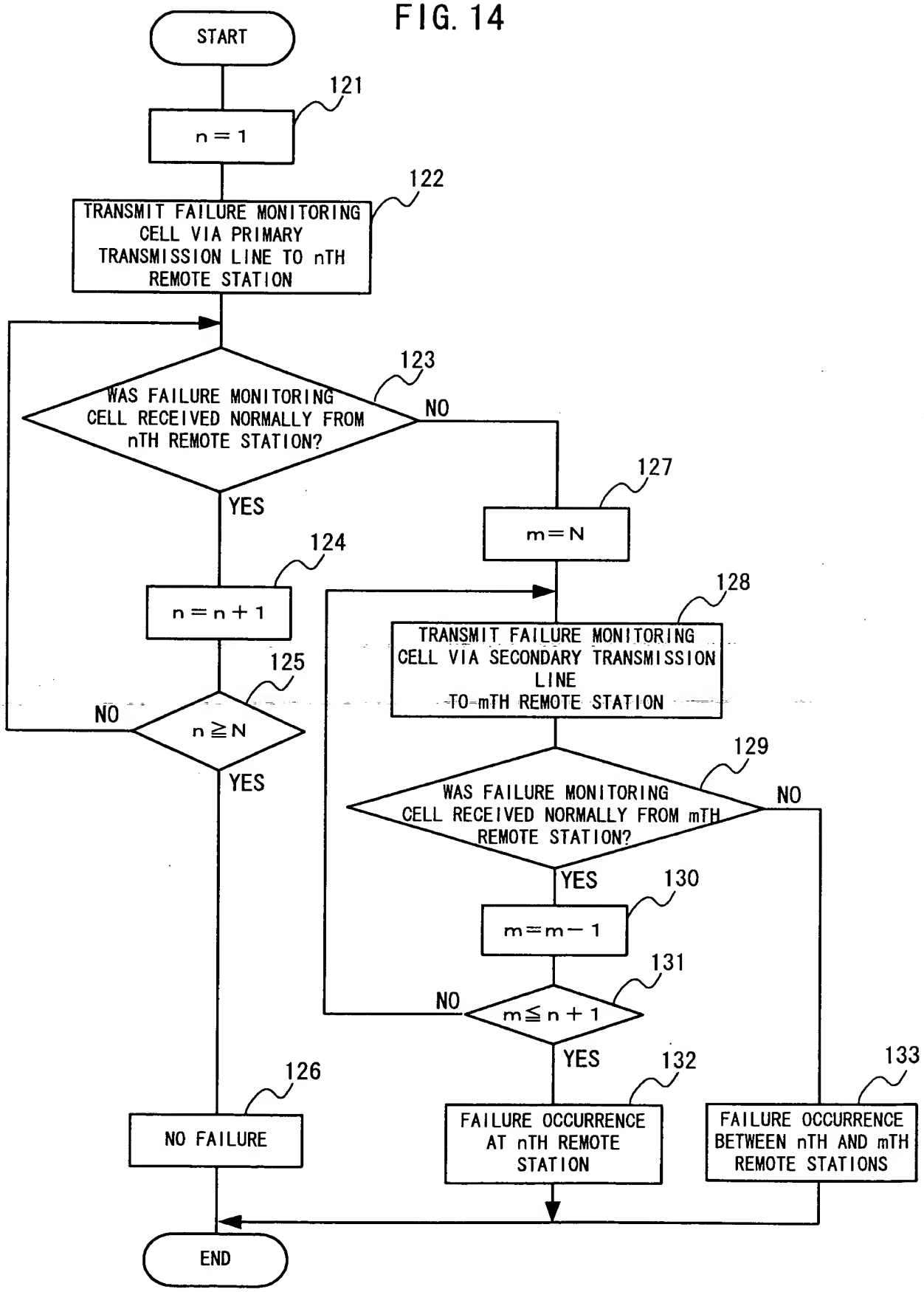

START
121
n = 1
122
TRANSMIT FAILURE MONITORING CELL VIA PRIMARY TRANSMISSION LINE TO nTH REMOTE STATION
123
WAS FAILURE MONITORING CELL RECEIVED NORMALLY FROM nTH REMOTE STATION?
NO
YES
124
n = n + 1
125
n ≧ N
NO
YES
126
NO FAILURE
127
m = N
128
TRANSMIT FAILURE MONITORING CELL VIA SECONDARY TRANSMISSION LINE TO mTH REMOTE STATION
129
WAS FAILURE MONITORING CELL RECEIVED NORMALLY FROM mTH REMOTE STATION?
NO
YES
130
m = m − 1
131
m ≦ n + 1
NO
YES
132
FAILURE OCCURRENCE AT nTH REMOTE STATION
133
FAILURE OCCURRENCE BETWEEN nTH AND mTH REMOTE STATIONS
END

FIG. 15

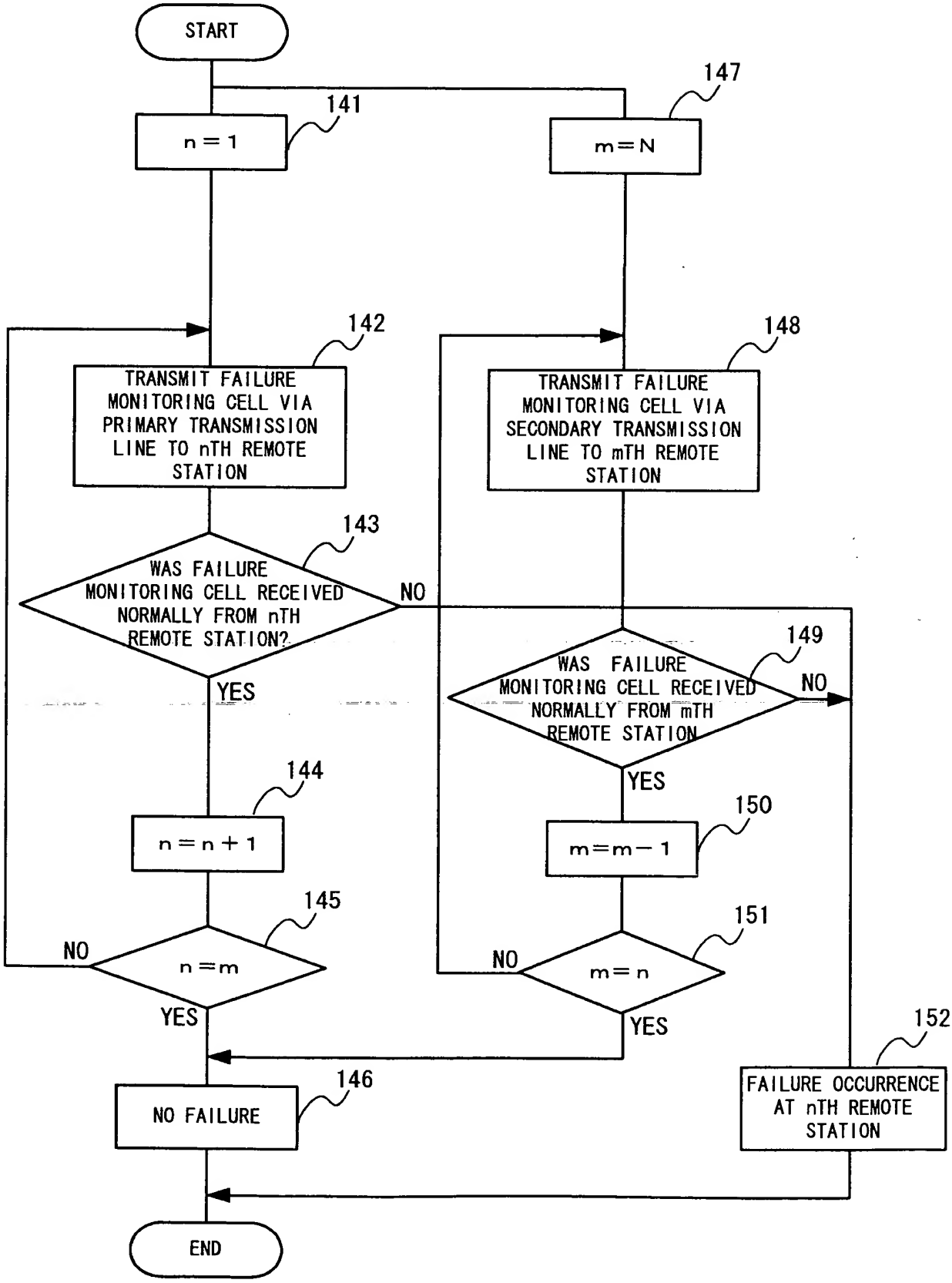

START
141
n = 1
147
m = N
142
TRANSMIT FAILURE MONITORING CELL VIA PRIMARY TRANSMISSION LINE TO nTH REMOTE STATION
148
TRANSMIT FAILURE MONITORING CELL VIA SECONDARY TRANSMISSION LINE TO mTH REMOTE STATION
143
WAS FAILURE MONITORING CELL RECEIVED NORMALLY FROM nTH REMOTE STATION?
NO
YES
149
WAS FAILURE MONITORING CELL RECEIVED NORMALLY FROM mTH REMOTE STATION
NO
YES
144
n = n + 1
150
m = m − 1
145
n = m
NO
YES
151
m = n
NO
YES
152
FAILURE OCCURRENCE AT nTH REMOTE STATION
146
NO FAILURE
END

FIG. 16

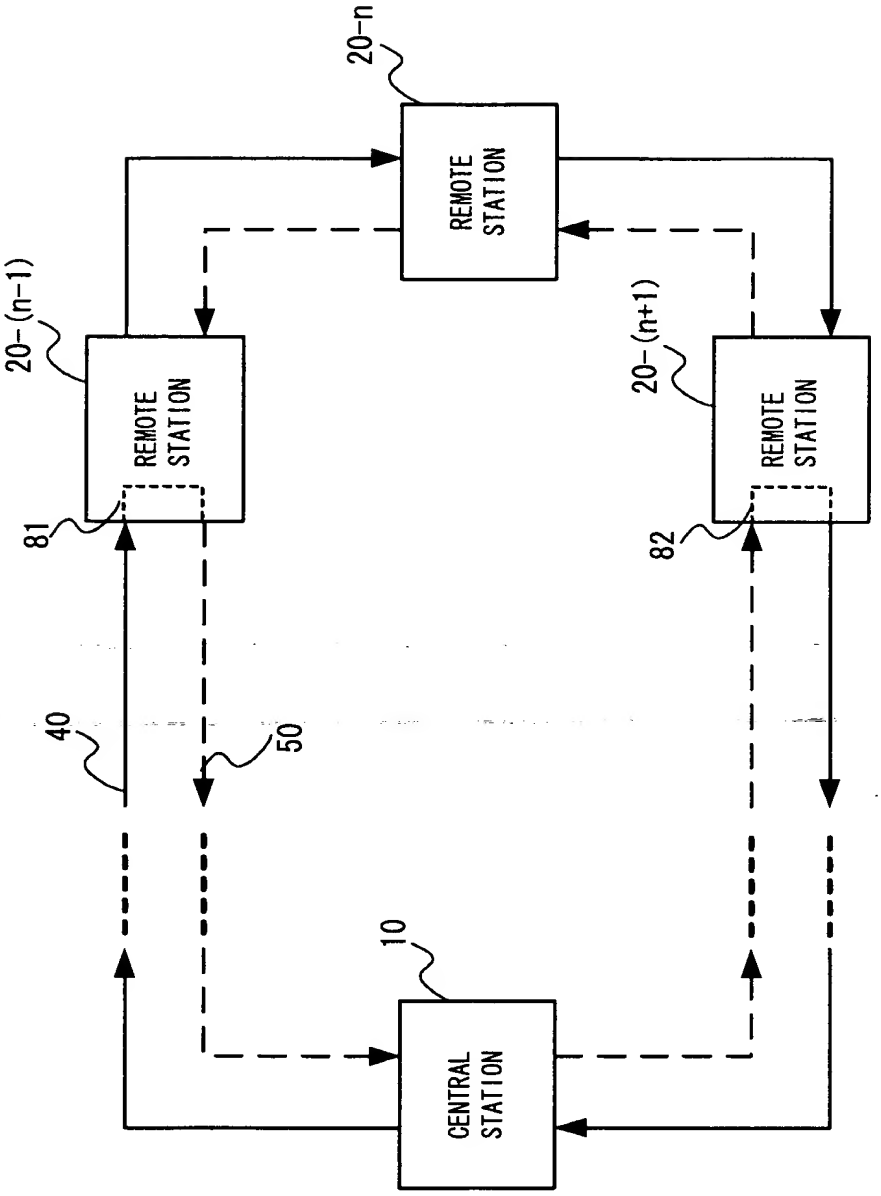

20-n
REMOTE STATION
20-(n-1)
REMOTE STATION
20-(n+1)
REMOTE STATION
81
82
40
50
10
CENTRAL STATION

FIG. 17

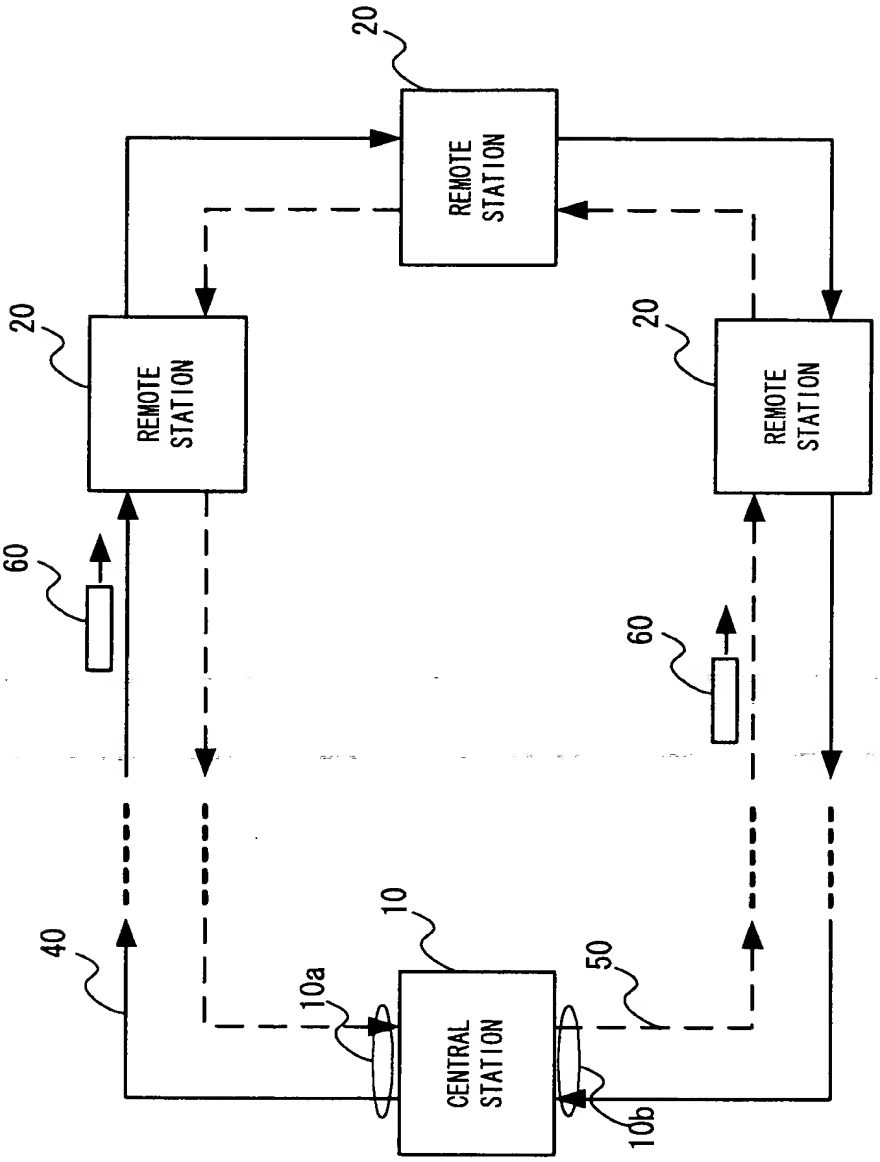

20
REMOTE STATION
20
REMOTE STATION
20
REMOTE STATION
60
60
40
10
10a
CENTRAL STATION
50
10b

FIG. 18

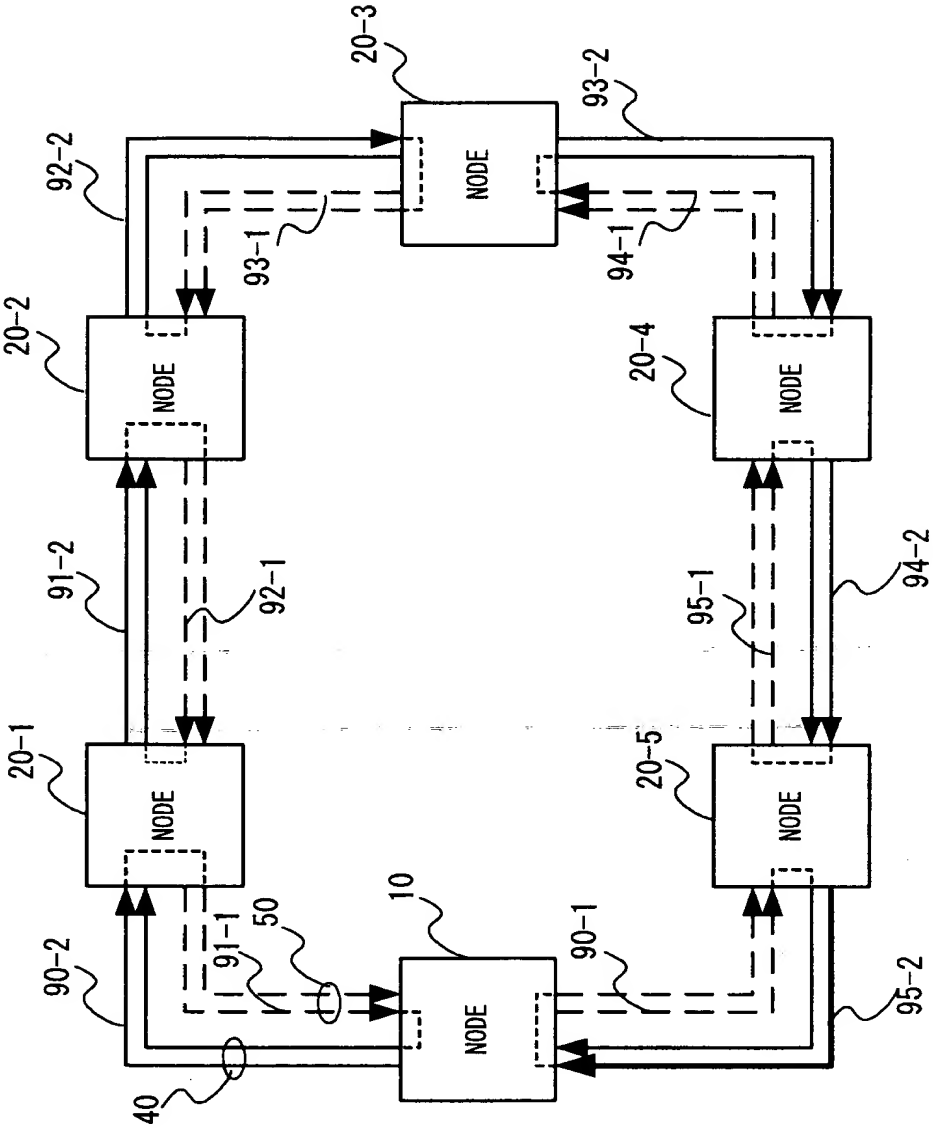

20-3
NODE
93-2
92-2
93-1
94-1
20-2
NODE
20-4
NODE
91-2
92-1
95-1
94-2
20-1
NODE
20-5
NODE
10
50
91-1
90-1
90-2
NODE
95-2
40

FIG. 19

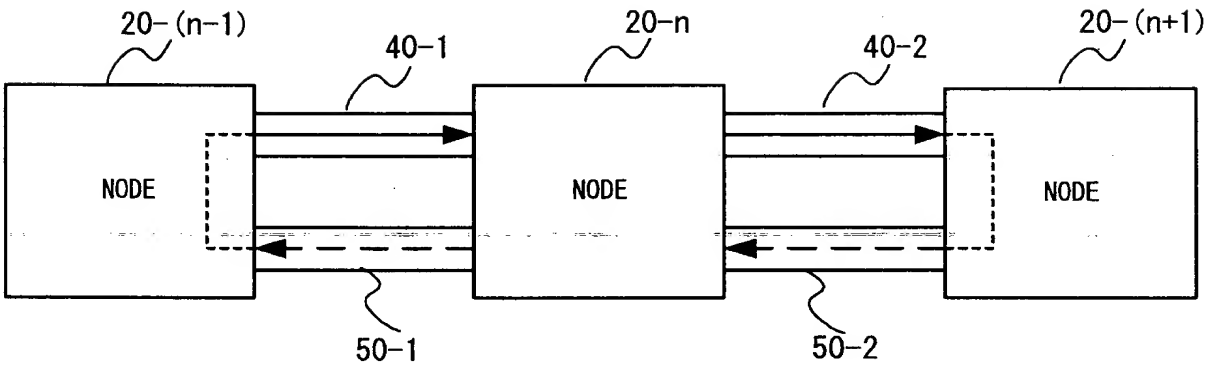
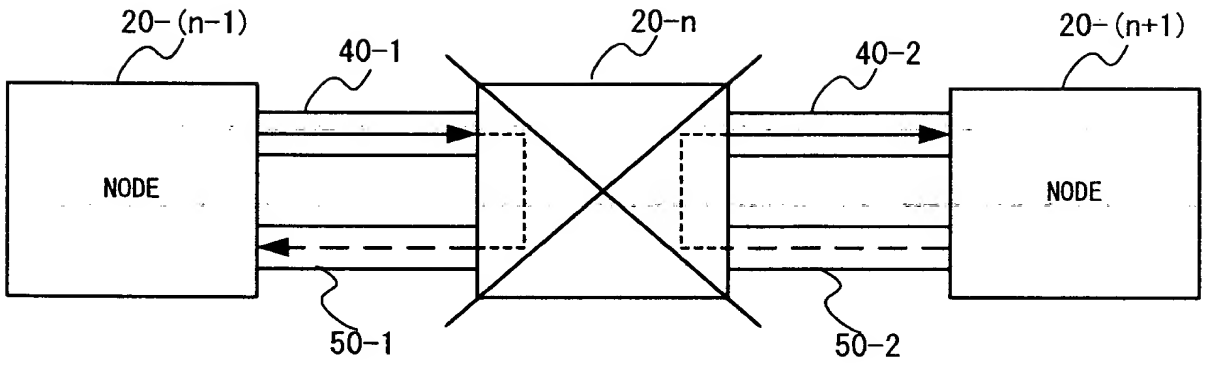


FIG. 20



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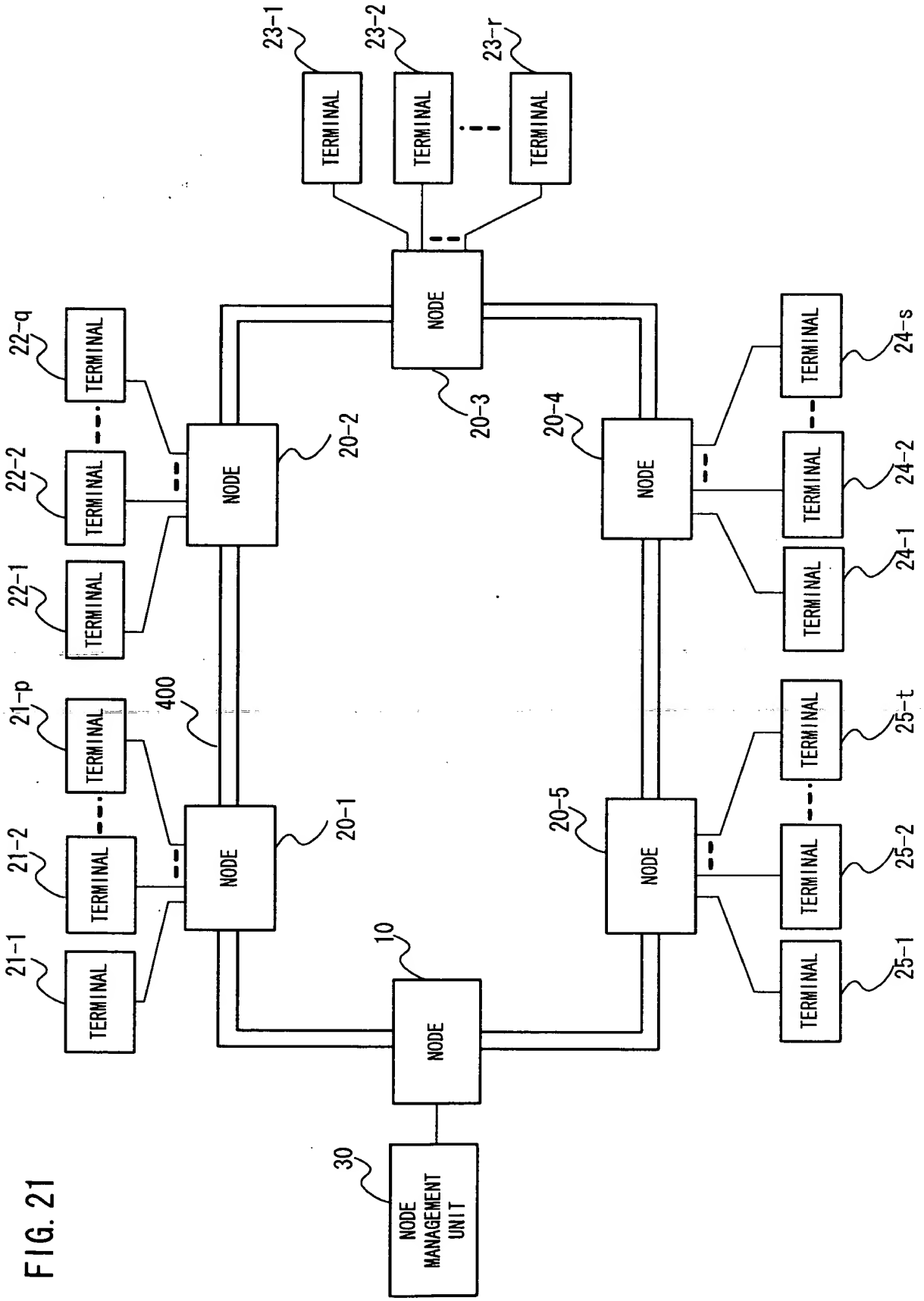

FIG. 21